

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a *FIE* polynucleotide sequence, which polynucleotide sequence specifically hybridizes to SEQ ID NO:1 or SEQ ID NO:3 under stringent conditions.
2. The isolated nucleic acid molecule of claim 1, wherein the *FIE* polynucleotide is between about at least about 100 nucleotides in length.
3. The isolated nucleic acid molecule of claim 1, wherein the *FIE* polynucleotide is SEQ ID NO:1.
4. The isolated nucleic acid molecule of claim 1, wherein the *FIE* polynucleotide is SEQ ID NO:3.
5. The isolated nucleic acid molecule of claim 1, further comprising a plant promoter operably linked to the *FIE* polynucleotide.
6. The isolated nucleic acid molecule of claim 5, wherein the plant promoter is from a *FIE1* gene.
7. The isolated nucleic acid of claim 6, wherein the *FIE* polynucleotide is linked to the promoter in an antisense orientation.
8. An isolated nucleic acid molecule comprising a *FIE* polynucleotide sequence, which polynucleotide sequence encodes FIE polypeptide as shown in SEQ ID NO:2 or SEQ ID NO:4.
9. a transgenic plant comprising an expression cassette containing a plant promoter operably linked to a heterologous *FIE* polynucleotide of claim 1.
10. The transgenic plant of claim 9, wherein the heterologous *FIE* polynucleotide encodes a FIE polypeptide.

11. The transgenic plant of claim 10, wherein the FIE polypeptide is as shown in SEQ ID NO:2 or SEQ ID NO:4.

12. The transgenic plant of claim 9, wherein the heterologous *FIE* polynucleotide is linked to the promoter in an antisense orientation.

13. The transgenic plant of claim 9, wherein the plant promoter is from a *FIE* gene.

14. The transgenic plant of claim 13, wherein the *FIE* gene is as shown in SEQ ID NO:1 or SEQ ID NO:3.

15. A method of modulating endosperm development in a plant, the method comprising introducing into the plant an expression cassette containing a plant promoter operably linked to a heterologous *FIE* polynucleotide.

16. The method of claim 15, wherein the heterologous *FIE* polynucleotide encodes an FIE polypeptide.

17. The method of claim 16, wherein the FIE polypeptide has an amino acid sequence as shown in SEQ ID NO:2 or SEQ ID NO:4.

18. The method of claim 15, wherein the heterologous *FIE* polynucleotide is linked to the promoter in an antisense orientation.

19. The method of claim 15, wherein the heterologous *FIE* polynucleotide is SEQ ID NO:1 or SEQ ID NO:3.

20. The method of claim 15, wherein the plant promoter is from a *FIE* gene.

21. The method of claim 15, wherein the expression cassette is introduced into the plant through a sexual cross.